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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,308	11/17/2003	Michael G. Robinson	95121961.029004	5120
23562	7590	11/02/2005	EXAMINER	
BAKER & MCKENZIE PATENT DEPARTMENT 2001 ROSS AVENUE SUITE 2300 DALLAS, TX 75201			SCHECHTER, ANDREW M	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/715,308	<b>Applicant(s)</b> ROBINSON ET AL.	
	<b>Examiner</b> Andrew Schechter	<b>Art Unit</b> 2871	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on 08 August 2005.

2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 42-61 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 42-61 is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
     Paper No(s)/Mail Date \_\_\_\_\_

4) ☐ Interview Summary (PTO-413)  
     Paper No(s)/Mail Date. \_\_\_\_\_

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8 July 2005 has been entered.

### ***Claim Objections***

2. Claim 56 is objected to because of the following informalities: "receiving the input light beam temporal modulator" in line 2 should be "receiving the input light beam at a temporal modulator". Appropriate correction is required.
3. Claim 56 is objected to because of the following informalities: there is no linking term such as "comprising" or "consisting of" between the preamble and the body of the claim; for examining purposes it is assumed that "comprising" is intended. Appropriate correction is required.
4. Claim 57 is objected to because of the following informalities: "of the first component beam" in line 3 should be "of the primary color". Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 56 and 59-61 are rejected under 35 U.S.C. 102(b) as being anticipated by *Doany et al.*, U.S. Patent No. 5,517,340.

*Doany* discloses [see Fig. 3, for instance] a method of modulating an input light beam, comprising receiving the input light beam at a temporal modulator [28]; temporally modulating selected spectral components of the input light beam by the temporal modulator [as labeled on the color wheel]; receiving the modulated light from the temporal modulator at a beam-splitting element [24], the beam-splitting element operable to direct first [s] and second [p] component beams to first [22 above] and second [22 to the right] panels; sequentially modulating first [R-s] and second [B-s] light spectra of the first component beam at the first panel; sequentially modulating first [R-p] and second [B-p] light spectra of the second component beam at the second panel; and combining the light of the sequentially modulated first component beam and the sequentially modulated second component beam to form an output light beam [the examiner notes that the claim does not require the first and second component beams

to overlap in time; in this reference, the output light beam contains the first and second component beams sequentially arranged]. Claim 56 is therefore anticipated.

The beam-splitting element is a polarized beam splitter, so claim 59 is also anticipated. The method discloses temporally modulating [by means of 30] at least certain spectra within the combined first and second light beams, so claim 60 is also anticipated. Similarly, a two-panel color modulation device is also disclosed having a temporal modulator, beam-splitting element, first panel, and second panel as recited in claim 61, so claim 61 is also anticipated.

7. Claims 56 and 59-61 are rejected under 35 U.S.C. 102(e) as being anticipated by *Rosenbluth*, U.S. Patent No. 6,636,276.

*Rosenbluth* discloses [see Fig. 16, for instance] a method of modulating an input light beam comprising receiving the input light beam at a temporal modulator [2200]; temporally modulating selected spectral components of the input light beam by the temporal modulator [col. 14, lines 53-63]; receiving the modulated light from the temporal modulator at a beam-splitting element [210, etc.], the beam-splitting element operable to direct first [K1] and second [K2] component beams to first [220] and second [230] panels; sequentially modulating first and second light spectra of the first component beam at the first panel; sequentially modulating first and second light spectra of the second component beam at the second panel [col. 14, lines 53-63]; and combining the light of the sequentially modulated first component beam and the sequentially modulated second component beam to form an output light beam. Claim 56 is therefore anticipated.

The beam-splitting element is a polarized beam splitter, so claim 59 is also anticipated. The method comprises temporally modulating at least certain spectra within the combined first and second light beams [at 2500], so claim 60 is also anticipated. This is also a two-panel color modulation device operable to receive an input light beam, with temporal modulator, beam-splitter, and first and second panels as recited in claim 61, so claim 61 is also anticipated.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 42, 44, 45, 48, 50, 51, 54, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Rosenbluth*, U.S. Patent No. 6,636,276 in view of *Brennesholtz*, U.S. Patent No. 6,280,034.

*Rosenbluth* discloses [see Fig. 5, for instance; note that this is a different embodiment that the one discussed in the previous rejection] a method of modulating an input light beam, the input light beam comprising a first, a second, and a third primary color [red, blue, green, col. 6, lines 55-57], the method comprising: receiving the input light beam at a beam-splitting element [202], the beam-splitting element operable to direct the first and second primary colors [red and blue] in a first direction [to 220] and to direct the third primary color in a second direction [to 230]; sequentially receiving the

first and second primary colors at a first panel [220] and sequentially modulating the first and second primary colors [col. 7, lines 11-13]; receiving the third primary color at a second panel [230] and modulating the third primary color; and combining the light of the sequentially modulated first and second primary colors at the beam-splitting element with the light of the third modulated primary color to form an output full-color modulated light beam.

*Rosenbluth* discloses using the time-sequential method, with temporal modulation of the first and second colors, but does not explicitly disclose receiving the input light beam at a polarization stack filter that comprises a stack of birefringent layers and at least one active liquid crystal cell, the polarization stack filter receiving at least the first and second primary colors of the input light beam and operable to temporally modulate the polarizations of the first and second primary colors by imparting a polarization to the first primary color this is different from the polarization of the second primary color.

*Brennesholtz* discloses [see Figs. 2 and 7, for instance] an analogous device in which the role of *Rosenbluth's* wavelength-selective retarder device [200] and color light wheel [col. 7, lines 11-13] is taken by a polarizing color shutter [82], which would receive the input light beam at a polarization stack filter [see Fig. 2] that comprises a stack of birefringent layers [1, 1', 1'', 3, 3', 3''] and at least one active liquid crystal cell [2, 2', 2''], the polarization stack filter receiving at least the first and second primary colors of the input light beam and operable to temporally modulate the polarizations of the first and second primary colors by imparting a polarization to the first primary color this is

different from the polarization of the second primary color [see col. 9, lines 10-61; as the polarizing color shutter 82 cycles through the colors, during a first period red is rotated, then in a second period blue is rotated, while green remains un-rotated in both periods]. It would have been obvious to one of ordinary skill in the art at the time of the invention to use *Brennesholtz's* polarizing color filter in the device of *Rosenbluth*, motivated by *Brennesholtz's* teaching that the electronically controllable selective polarization filter has advantages over the color wheel technology in that it has no moving parts, has electronic control, allows intermediate colors and mixtures of colors, allows better synchronization, and smaller size [col. 6, lines 55-65]. Claim 42 is therefore unpatentable.

The device thus formed is a two-panel color modulation device as recited in claim 48, so claim 48 is also unpatentable.

*Rosenbluth* may or may not explicitly disclose using LCOS panels in the device of Fig. 7; regardless, *Rosenbluth* teaches using LCOS panels, saying that they "are expected to become the lowest cost light valve technology" for various application [col. 1, lines 17-21]. It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to use LCOS panels in the above device, motivated by this teaching of *Rosenbluth*. Claims 44 and 50 are therefore unpatentable.

The beam-splitting element comprises a polarizing beamsplitter [PBS], so claims 45 and 51 are also unpatentable. There is a clean-up polarizer [600] after the beam-splitting element, so claim 54 is also unpatentable. The light source [90] produces s-



polarized light, so there is a polarizer before the beam-splitting element, and claim 55 is also unpatentable.

10. Claims 57 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Rosenbluth*, U.S. Patent No. 6,636,276 as applied above to claims 56 and 59-61, in view of *Brennesholtz*, U.S. Patent No. 6,280,034.

*Rosenbluth* does not disclose that the first light spectra of the component beam is a primary color and the first light spectra of the second component is the complement of the primary color, and likewise for the second light spectra of each. *Brennesholtz* discloses an analogous device in which such pairs of primary color and complementary color are used in this way, and teaches that doing so is beneficial because it permits the use of substantially all of the available light [col. 3, lines 18-25], giving high efficiency and low power consumption. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so in the device of *Rosenbluth*, motivated by this teaching of *Brennesholtz*. Claims 57 and 58 are therefore unpatentable.

11. Claims 42-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Rosenbluth*, U.S. Patent No. 6,636,276 in view of *Brennesholtz*, U.S. Patent No. 6,280,034 as applied above to claims 57 and 58, and further in view of *Brennesholtz*.

The embodiment of *Rosenbluth* shown in Fig. 16, which was above applied to claims 57 and 58, can also be applied to claim 42 as follows. Cycling through all the primary colors and their complements as discussed in *Brennesholtz*, in one cycle (the first time period) the primary color [say, K1] will be blue-s, and the complementary color [say, K2] will be red-p and green-p. In another cycle (the second time period), the

primary color will be green-s, while the complementary color is red-p and blue-p. The blue and green colors are the first and second primary colors, the red is the third primary color, and the beam-splitting element directs them as recited in claim 42, with sequential modulation at the panels and recombination at the beam-splitting element.

This embodiment does not explicitly disclose that the temporal modulator is a polarization stack filter with a stack of birefringent layers and an active liquid crystal cell [this seems to be implied by *Rosenbluth*, but it is not disclosed explicitly]. *Brennesholtz* discloses such a temporal modulator [see Fig. 2], and it would have been obvious to one of ordinary skill in the art at the time of the invention to use it in the device of *Rosenbluth*, motivated by the teaching of *Brennesholtz* that the device of Fig. 2 has no moving parts, is electronically controllable, and accomplishes the wavelength-selective polarization controlling effect that the elements [2200] and [2500] in *Rosenbluth* are required to perform. Claim 42 is therefore unpatentable.

This is the device of claim 48, which is also unpatentable. The third primary color is red, so claims 43 and 49 are also unpatentable. It would have been obvious to one of ordinary skill in the art at the time of the invention to use LCOS panels as taught by *Rosenbluth* [col. 1, lines 18-20], so claims 44 and 50 are also unpatentable. The beam-splitting element is a polarizing beamsplitter, so claims 45 and 51 are also unpatentable. The first and second primary colors and their polarizations behave as recited in claims 46 and 47, as discussed above, so claims 46, 47, 52, and 53 are also unpatentable. There is a clean-up polarizer [600], so claim 54 is also unpatentable, and the light

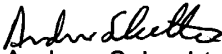
coming from [90] is polarized, so there is a polarizer before the beam-splitter, and claim 55 is also unpatentable.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Andrew Schechter  
Primary Examiner  
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30 October 2005